CHAPTER 1

ALIGNMENT OF QUARTERMASTER FIELD SERVICE SUPPORT

This chapter is for all unit leaders and supervisors.

Section I

FIELD SERVICES

INTRODUCTION

FS functions include airdrop, mortuary affairs, field feeding, laundry and shower, clothing repairs and light-textile repairs, and water purification. These help keep the soldiers' morale high. They also enhance unit effectiveness and mission success. FS covers many and varied services or functions. Quartermaster personnel primarily provide these services in many units at the tactical and operational levels of logistics. See FM 10-1 for QM fundamental principles on field service operations.

Wartime Tactical Support. Laundry and shower DS at the tactical level will be provided by a FSC that can send small teams as far forward as desired by the supported commander. At the operational level, this GS will be provided by a combination of FSCs, HNS, and contractors. A GS laundry capability will be provided by a laundry and renovation company assigned to the TAACOM. The FSC can make limited, minor clothing repairs. A larger capability exists in the laundry and renovation company. In addition, Quartermaster fabric repair specialists are organic to selected maintenance units to repair a variety of canvas and fabrics used on tactical vehicles.

Peacetime Support. In support of peacetime training, contingencies, or support and stability operations, FS may be provided by Active, Reserve, and National Guard components, contract, or HNS. ARs, SOPs, and HNS agreements will govern policies and procedures for procuring and using contracted services. Appendix A gives a suggested SOP format.

Augmentation Support. The Army continually seeks to increase its combat potential within peacetime resources allocations. This requires augmentation support (contracting) from external resources. US Armed Forces use of contractors to provide supplies and services during both peacetime and contingencies dates back to the Revolutionary War. Thus, to achieve the maximum augmentation potential, support from as many sources as possible is necessary. HNS, as mentioned above, is one method of support obtained through Government-to-Government negotiations. Today, a program exists to preplan for the effective use of civilian contractors in wartime and other contingencies to augment US forces and support DOD missions. The program is known as LOGCAP. AR 700-137 gives the program for the Army. In short, LOGCAP is a DA capstone program. It includes all preplanned logistics, engineering, and construction-oriented contingency contracts, actually awarded. This includes peacetime contracts, having contingency clauses. LOGCAP, thus, is a tool that provides field commanders an alternative augmentation source for filling CS/CSS shortfalls by using contractor/commercial vendor expertise and resources when other sources are unavailable.

FS SUPPORT TO CORPS AND THEATER ARMY

Logically, units in the rear areas will enjoy greater opportunities for improved quality of life support than maneuver units deployed on or near the FLOT. Rear area units have unit self-help support, individual

self-help support, plus HNS and contract support. HNS and contract support may not be available under all conditions and in all locations. However, where available, non-US military support must be used to help balance the quality of support between maneuver units and rear area units. FSC support assets will be based on the capability of the unit, the desires of the commander, and METT-TC. Focus of the FSC is on support to combat, combat support, and CSS units within a division and non-divisional level.

The FSC protects the force by improving soldier sanitation, reducing disease, and keeping soldiers' readiness and morale high. These conditions improve the soldiers' physical and mental status and give the soldiers' unit, itself, the temper to affect mission success. To support battlefield operations, the FSC, applies the Army operations' tenets of initiative, agility, depth, synchronization, and versatility to be flexibly committed and responsive to the combat commander's forces. The FSC carries out its support mission by applying FM 100-5 logistics characteristics of anticipation, integration, continuity, responsiveness, and improvisation. Using these characteristics, the company can change with the tactical situations of war and help with the needs of stability and support operations, especially, for peacetime callings.

ORGANIZATION FOR SUPPORT

The FS functions of SLCR will be provided by a QM FSC, M (TOE 10414L0). QM FSC, M can support 21,000 soldiers. It is normally assigned to a HHD, QM S&S Battalion (TOE 42446L000); HHC Support Group (Corps) (TOE 63422L000); or HHC, Area Support Group (TOE 63622L000). The QM FSC, DS is assigned to the TAACOM or COSCOM and normally attached to HHC, QM S&S Battalion (TOE 42446L000). See Section II in this chapter for more information on company responsibilities. Figure 1-1 depicts FSC, DS becoming the FSC, M organization.

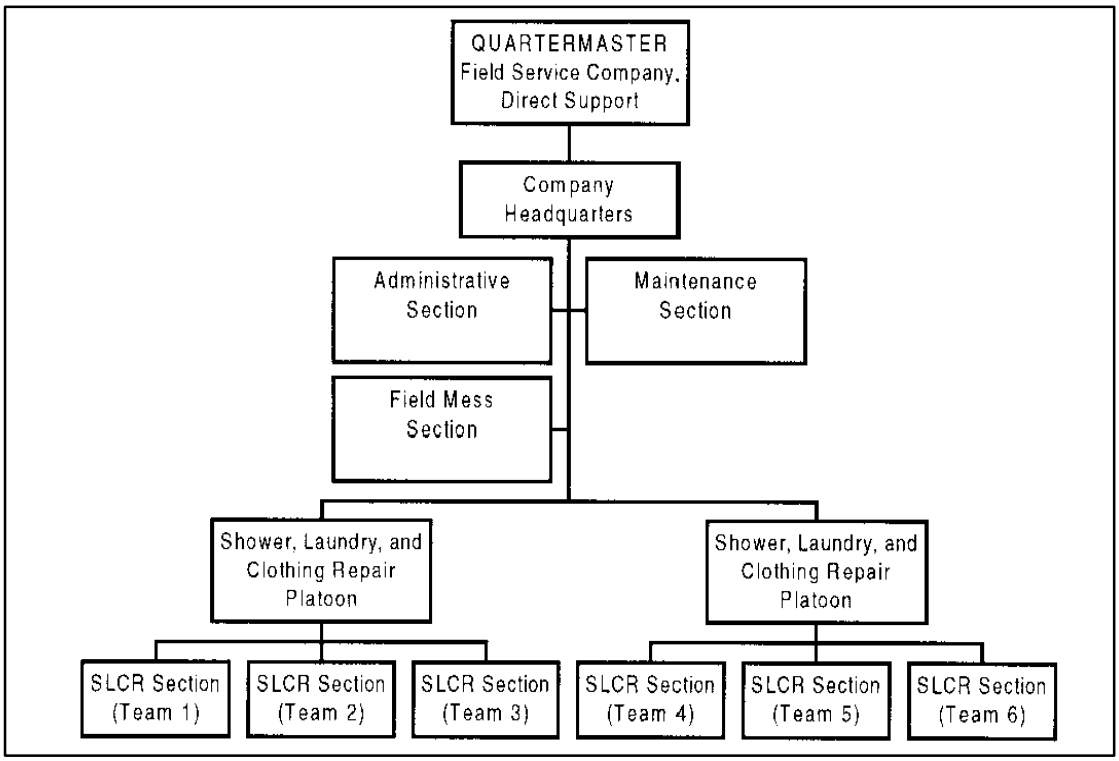

Figure 1-1. QM field service company, modular (TOE 10414L0)

The QM FSC, M Organization (TOE 10414L0). It will be organized with a company headquarters and two SLCR platoons. The company headquarters will provide routine administrative, supply, maintenance, and food service support to the company. When deployed, SLCR platoons and its sections (or teams) may require feeding support from supported unit.

SLCR Platoon Organization. Each platoon consists of a platoon headquarters and three SLCR sections (or teams). The SLCR platoon headquarters coordinates mission operations with supported units for services. The SLCR platoon sets up and operates the three SLCR sections or teams simultaneously.

The QM FSC, DS Organization (TOE 42414L0). It is organized with a company headquarters (i.e. administration, supply, and food service elements); a laundry and renovation platoon, consisting of a platoon headquarters, a renovation section, and a laundry section; and, a shower platoon, consisting of a platoon headquarters and a shower section.

NOTE: CES operations will cease in the FSC.

Capability. Mission equipment of the FSC is highly mobile and can provide support as far forward as the METT-TC allows. In the QM FSC, M, each SLCR section/team has 100 percent mobility with enough vehicles to provide services forward. It can deliver clean laundry to its supported units as METT-TC conditions permit. Each SLCR section/team maintains its own equipment. Each SLCR section/team may need to move every 24 hours in the brigade area. In the division rear, it may need to move up to three times within a seven-day period. (Total unit production capability will be degraded in cases of more frequent moves.) The SLCR platoons and their respective sections/teams coordinate with the company commander and the FSB SPO in planning their reposition or AO assignment. The QM FSC, DS is capable of moving 75 percent of its TOE equipment and supplies in one single lift, using its own unit vehicles. Deployment and coordination requirements are the same as above. Additional company capabilities and support needs for each FSC are identified in Chapter 2.

SUPPORT SERVICES

The FSC must adapt its field support capabilities in a sufficient and flexible manner to meet the changing warfighting doctrine. To meet the necessary battlefield METT-TC conditions, the FSC provides the following operating services:

NOTE**: Clothing Exchange Services**. CES allowed soldiers to exchange their dirty serviceable clothing for clean clothing in conjunction with a field shower. FSC will not perform clothing replacement. CES is a supply action to replace unserviceable clothing. The FSC will provide a "wash and return" policy for all soldiers. They will wash and return to soldiers their own clothing with name tags, organizational patches, and skill badges.

Laundry Support Services. In keeping with the Surgeon General standards, the FSC will provide a minimum of one shower per week to the soldier in conjunction with laundry support. This is to maintain his minimum level of personal hygiene required to minimize force degradation from infectious diseases. Laundry support services entails the following --

Implement Laundry Planning Factors. In the QM FSC, M (TOE 10414L0), soldiers should consider that 15 pounds of laundry equals three BDUs minus a field jacket, three sets of underwear, socks, and two towels. In this process, soldiers will receive their clothing back in a 24-hour period, or at a time

and location mutually acceptable to the laundry section and the supported unit. The QM FSC, DS (TOE 42414L0), will service at the rate of 7.9 pounds of laundry per soldier per week.

Provide Laundry Delivery Service. Delivery service must be closely coordinated. Contingency plans must be set up in case the supported units relocate prior to delivery. Contingency plans may include having the supported unit's supply NCO or other designated representative to pick up clean laundry and issue to the soldier when METT-TC allows.

Establish Communications Services. The FSC and its elements or sections/teams will be able to communicate with supported units to facilitate field service operations, especially the delivery of clean clothing. See Figures 1-2 and 1-3 (pages 1-5 and 1-6) for the company's communication system.

NOTE: The FSC, M will increase its capability of laundry service through the fielding of the LADS with its innovative reduced water usage technology. Using about 240 gallons of water per 20 hours of operation, the LADS produces about 400 pounds of clean laundry per hour and reduces the number of operators required by 75 percent. Laundry equipment capability is measured in terms of "pounds per hour," which makes it essential that soldiers' allocation for laundry be measured in terms of weight rather than pieces.

Shower Support Services. The FSC, M, shower and laundry entity (sub-element of the SLCR section/team) can support 3,500 soldiers per week. They will be deployed in support of a brigade-size element. They will provide showers, clean laundry, clothing repair and limited, lightweight textile repair. The S/L element(s) of the SLCR section(s)/team(s) may be organized (required) by tasks to accommodate a particular strength requirement. The FSC, DS will support 18,500 soldiers per week, providing required services stated above. Shower support services entail --

Establish Shower Operations. Shower operations must take care of both male and female soldiers. This can be done by either providing separate shower facilities or by separate scheduling, whichever is most practical at the time. Supply personnel from the supported units are responsible for providing HCP 1 and 2 to their own soldiers.

Establish Shower Procedures. After showering, soldiers will put on clean clothing. They will be told to go to the laundry point to turn in dirty laundry. Details on showering procedures will be explained in Chapter 3.

NOTE: Commanders should make every effort for soldiers to have clean clothing after they have showered. This may require unusual and extraordinary efforts by the command. The command must ensure soldiers follow the unit's SOP, requiring them to carry clean clothing in their rucksack.

Decontamination Support Services. The FSC will NOT provide laundry decontamination support; showers will not be used for troop decontamination of chemical and biological agents. However, a shower may be used for radiation decontamination. If MOPP gear is used as protection from fallout, no showers will be needed. If MOPP was not used, then, contamination may be lodged in the hair and on the skin and can only be removed by showering. Run-off water from these showers is contaminated. It must be controlled IAW applicable procedures and EPA requirements.

NOTE: Current chemical protection over-garments cannot be washed or decontaminated by field laundries and retain their protective qualities. Once these garments are exposed to contamination, they must be disposed of IAW higher headquarters directives and applicable procedures. The next generation of chemical

protection for over and undergarments will allow at least four washings, before being exposed to any contaminations, and still provide protection from chemical agents.

EPA implementation is initiated by following --

EPA Regulations In The United States. Rules and regulations for wastewater discharges are set by the EPA or a state with an EPA-approved program under the NPDES, established under the CWA. The NPDES sets minimum treatment standards for surface waters discharges. It also sets up the framework for setting more discharge standards. For disposal of discharges, apply for and obtain an NPDES permit (or state equivalent), which contains discharge standards and restrictions that apply to the given discharge. Before operating any S/L elements in the United States, check with the state and local EPA for permit(s) requirements.

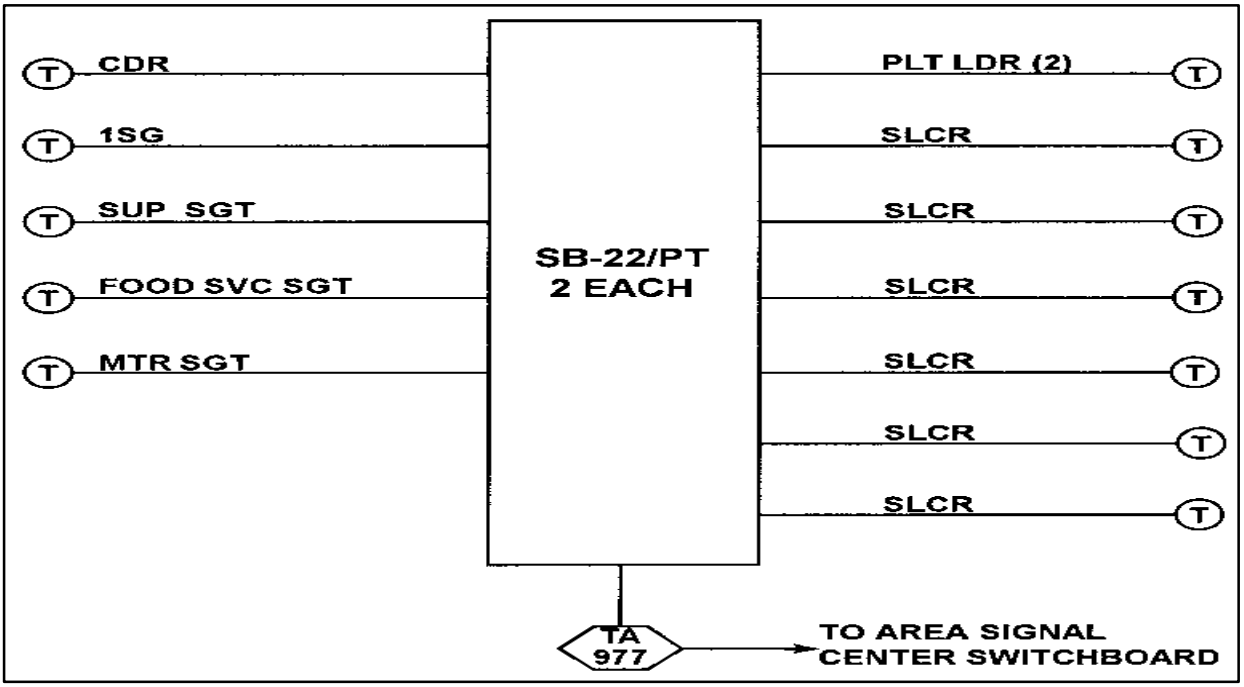

Figure 1-2. Proposed wire net for QM field service company (modular)

*(NOTE: QM FSC, DS and QM FSC, M are authorized TA-312/PT telephone sets.)

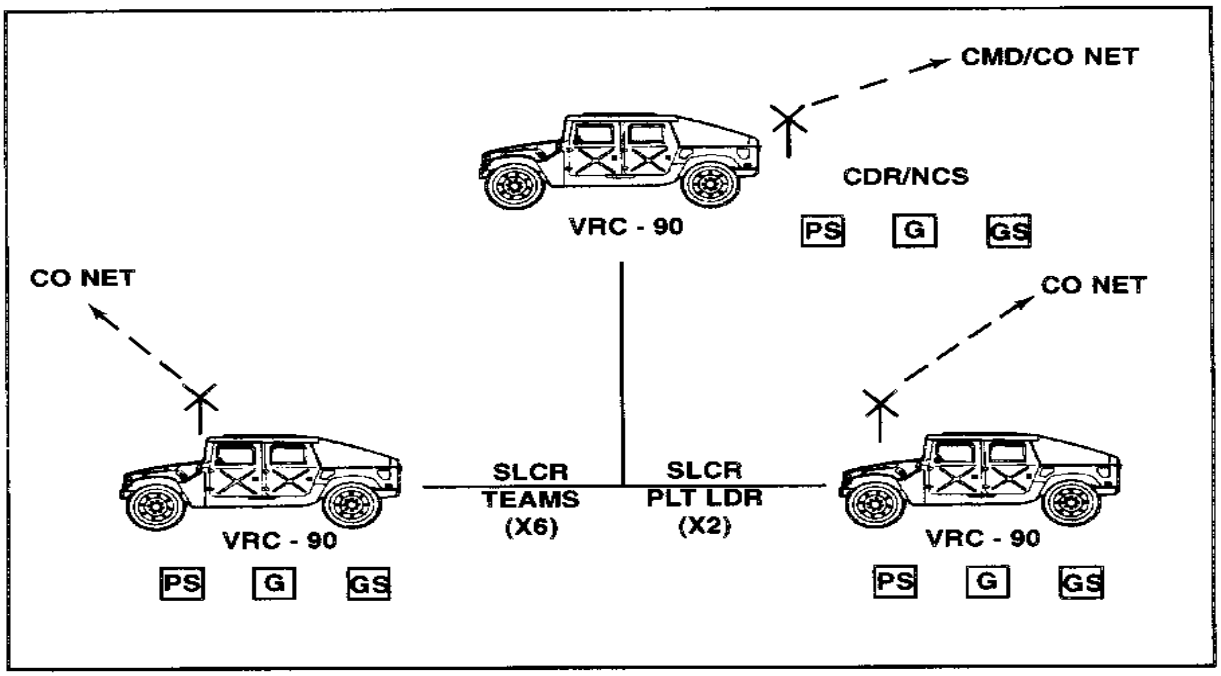

Figure 1-3. Proposed radio net, QM field service company (modular)

*(NOTE: Command elements of QM FSC, DS authorized VRC-90 radios.)

EPA Discharge Permits. Many military installations may have current discharge permits for water sources located on the installation, which are used by S/L elements. Check with the Installation Environmental Office for guidance. Always consider the potential environmental impact of chemical or waste discharges on a water source.

EPA Regulations in Other Countries. It is always necessary to check with local authorities for regulatory requirements. Each country in which water purification, storage, and distribution operations may be used will have their own guidance on disposal of chemical and waste discharges in a training exercise, as well as ambient water quality criteria. Units must comply with environmental standards applicable in the host country.

Laundry Support Services For OCIE. The first priority of the FSC is the soldier's personal clothing. However, laundry support for OCIE and seasonal and special-purpose clothing is needed. Requirements to meet laundry services for OCIE is initiated through the following directed measures.

OCIE Service. OCIE and seasonal and special-purpose clothing will be turned in through normal supply channels to the organization in the rear area that is responsible for contracting or arranging HNS for laundry support.

OCIE Support. If there is a light work load for personal clothing, the FSC laundry elements may provide limited support for selected OCIE and seasonal and special-purpose clothing as directed by higher headquarters.

Clothing Repair Support Services. Soldiers may need their clothing to be repaired on the battlefield. This support may be provided by three methods, depending on the extent of the requirement: self-help,

direct support through the FSC clothing repair element, and support through HNS and/or (hired) contract service. CR support service is gauged upon the following measures --

CR Operating Standards. The individual soldier can make minor and emergency clothing repairs using repair kits available through the supply system. If he cannot make the repair, he should identify the clothing needing repair at laundry turn-in. After the clothing is cleaned, the fabric repair specialists will inspect and determine serviceability. They will do limited clothing repair based on standards set in FM 10-16; TMs 10-8400-252-23 and 10-8400-201-23; and SB 10-523.

CR Time Standards. Repairs will be made within the 24-hour laundry turn-around time.

NOTE: Soldiers should be careful when turning in grossly damaged clothing for laundry. If the item is determined to be unserviceable and unrepairable, it is returned to the user. The user, then, disposes of the item(s) by initiating a supply action to immediately replace the item(s). Under combat conditions, units can immediately requisition replacements through the supply system for those items not repairable. The FSC, (direct support or modular) has **no capability** to issue replacement items.

Section II

CAPABILITIES AND OPERATIONAL CONCEPT OF FS UNITS

RESPONSIBILITIES

To maintain good morale and hygiene comfort to troops in the field, showering and clean laundry and serviceable clothing support is recognized as an essential necessity for personal sustainment needs. Units providing this support are --

Quartermaster FSC (DS or M). This company is the primary provider of tactical field services to divisional and non-divisional personnel from corps forward area to FLOT. Services include shower, laundry, limited clothing and lightweight textile repairs (described as “renovation” in FSC, DS), and delousing support. Refer to section I in this chapter for organizational structure and unit attachment.

Quartermaster Laundry and Renovation Company, GS. The mission of this company is to receive, classify, launder, renovate, and temporarily store clothing and lightweight laundered textiles. The company also processes and stores seasonal clothing and equipment. It is assigned to a TAACOM and attached to an S&S Battalion in an area support group. The following describes its composition and capability.

Organizational Structure. The company is organized with a headquarters section, operations section, classification and storage platoon, and a laundry and renovation platoon. It operates on two shifts.

- *The classification and storage platoon* consist of a platoon headquarters, a classification section, and a storage section.

- *The laundry and renovation platoon* consists of the platoon headquarters, renovation section, and a laundry section.

Capability. On a weekly basis, the company can receive, classify, and temporarily store about 22 tons of clothing and lightweight textiles; renovate about 35,000 items; and launder 44,000 pounds of clothing.

Quartermaster Laundry Team. This team is normally attached to a TAACOM hospital unit, base (field); or a TAACOM hospital unit, base (general). The team provides weekly laundry service for 500 hospital patients, based on 77 pounds for each patient a week.

Combat Support Hospital. This hospital has unit equipment to support its patient load. Its personnel are supported by the FMC in their AO. The hospital must request and coordinate staff services through its support channels.

NOTE: Although CSS requirements for the QM laundry and renovation company and the QM laundry service teams have been identified by FORSCOM, these elements are not currently resourced.

QUARTERMASTER FORCE PROVIDER COMPANY

The Army requires a capability to provide front-line soldiers a brief respite from the rigors of duty in a front-line area. The following paragraphs discuss the history and concept of this unique company and its special services support to the soldier in the field.

History of Force Provider. Operation Desert Storm ushered in a new area for the Army. For the first time, the difference between a U.S. Army soldier's and a U.S. Air Force airman's quality of life in the field was broadcasted to the world, as they waited for a war to begin. World news televised Army soldiers sleeping in tents that were designed in the 1940s and 1950s and using makeshift latrines and showers, while Air Force airmen lived in modern field facilities. Recalling their days in the field, the Army's senior leadership saw that little had improved over the years. They demanded an immediate change to this inequality. One of the results was the QM FPC.

Concept of Force Provider. To support the soldier in the field, the Force Provider concept was set up to identify with the Army's myriad of mission profiles. These being soldier rest and refit services, convoy support actions, theater reception operations, and immediate staging base operations. Force Provider would also be used to provide support to humanitarian aid, disaster relief missions, and peacekeeping missions--stability and support operations. The requirements for organizations and equipment that would enable Force Provider to support these diverse missions were instrumented by TRADOC. Force Provider would be containerized for easy air, land, or sea transport. It would be modular for operating in a variety of tactical environments and movable to follow troop movements. It would offer a variety of services to improve soldier quality of life in all field environments anywhere in the world.

Force Provider Support Service Capabilities. Force Provider is air, land, and sea transportable. It is also a collective support system that provides comforts rarely enjoyed by Army combat soldiers. These Force Provider modules will support up to 550 soldiers and may be combined to support brigade-size forces of up to 3,300 soldiers. The following describes its uniqueness.

QM FPC Set Up. It will be a self-contained unit. It will have its own capabilities. These being a unit power generation system, water and wastewater distribution systems, and fuel storage areas. However, external transportation, water, and engineer support will be needed to set up and operate Force Provider.

QM FPC Services. Troop units will rotate into the QM FPC for rest and refit services. These services will consist of the following: hot meals and showers, laundry service, and a variety of MWR activities. Also, supported units will be living in environmentally controlled tents. See Figure 1-4 (page 1-10) for the set up of the QM FPC.

QM FPC Equipment. It will use the best CSS equipment available within the DOD. Force Provider will use the modern air-conditioned Army TEMPER tent as its basic "building block." These TEMPER tents will house Air Force showers and latrines. They will serve as quality billets, kitchen and dining facilities, and MWR centers. Power to these facilities is provided by either the Army's 60-kilowatt tactical, quiet generators or by the 750-kilowatt generators from the "Prime Power Battalion." Fuel (area) storage facilities, wastewater storage areas, and a pressurized fresh water system will round out the utilities serving Force Provider.

Force Provider Future Enhancements. Improvements will continue as state-of-the-art containerized kitchens, latrines, and laundries. A winterization kit will enable worldwide deployment. A high-tech wastewater treatment system will recycle laundry and shower water and reduce nonrecyclable liquid waste products to an environmentally disposal state.

QM FPC Assignment Area. Force Provider is to be assigned to a TAACOM or a COSCOM with attachment to a HHD, S&S Battalion (TOE 42446L) or a HHC, Support Group (Corps) (TOE 63422L). The QM FPC may be detached to operate separately in an austere environment.

QM FPC Organizational Structure And Operational Functions. The company consists of nine major elements. It has a company HQ, a support operations section, a maintenance section, six provider platoon HQs, six food service sections, six S/L sections, six water distribution sections, six facilities support sections, and six petroleum distribution sections. Documented as a complete TOE showing strength levels 1, 2, and 3, this unit is planned to be organized only as a Type B structure. See AR 220-1 for more information on TOE strength levels. As such, 44 personnel will serve as the nucleus for unit operational planning and deployment. Based on plan execution, these personnel will fall in on Force Provider equipment modules already in place or in contingency storage areas. Full unit functioning will be handled by filling the unit with DA civilians, contractors, local nationals, or third country nationals. Significant dependence will be placed on other TOE organizations for help in setting up the site and operating support. The nine QM FPC elements and their functions are --

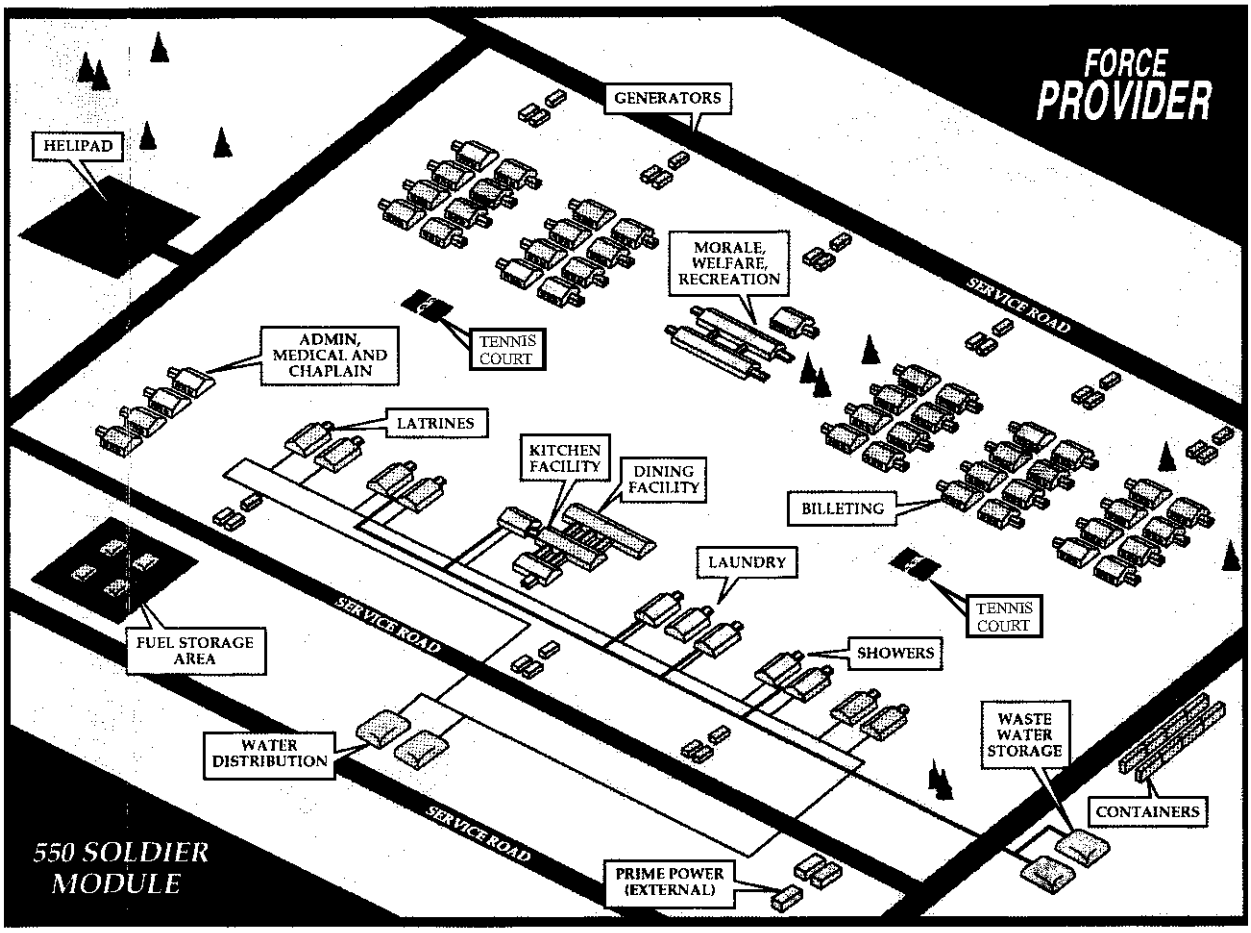

Figure 1-4. Set up of the QM FPC

- *Company HQ*. The company HQ provides C^2, training, administration, and logistical support needed to do unit operations. The company commander is assisted by the first sergeant, who supervises and coordinates the functions of the company.

- *Support operations section*. This section supervises the supply, maintenance, and field service support operations and advises the company commander in these functional areas. It also serves as the focal point for all contracting and engineer support.

- *Unit maintenance section*. This section provides unit maintenance on all unit equipment except COMSEC and communications-electronics equipment.

- *Six provider platoon HQs*. The HQ supervises those activities such as billeting, supply functions, climate control, and facility spacing needs for basic MWR services.

- *Six food service sections*. The sections prepare and serve three cooked meals daily. This includes preparing meals for a maximum module of 550 supported personnel and up to 3,300 personnel when Force Provider is fully deployed.

NOTE: The kitchen and dining facility setup must be at least 100 feet from the latrines.

- *Six S/L sections*. The S/L sections plan and coordinate internal logistics requirements in providing shower support and performing company security operations. The laundry system can wash each soldier's turn-in of 15 pounds of laundry within a minimum of three days.

- *Six water distribution sections*. The sections provide approximately 80,000 gallons of treated water for a maximum of three days. They can store, distribute, and dispose of water for units assigned to QMFPC.

- *Six facilities support sections*. The sections supervise and coordinate all lighting, climate control, power generation and distribution services, and all facilities support requirements.

- *Six petroleum distribution sections*. These sections provide QM FPC the necessary Class III supply support. They can receive, store, and issue Class III supplies as needed.

Force Provider Support Request Channels. Divisional elements desiring Force Provider support will send requests through their command channels to the DISCOM Support Operation Branch, which will be responsible for work-loading the QM FPC. Priority of use within the division will be set by the ACofS, G1. Non-divisional elements, wishing to use the QM FPC, will submit requests through their command channels to the DISCOM Support Operations Branch, who will determine in consultation with the ACofS, G3 whether or not support can be provided. The following depicts its support role.

Force Provider Support. If Force Provider is in DS of one or more divisions, while remaining under the C^2 of the COSCOM or TAACOM, priority of support will be given to the supported divisions. Non-divisional elements will be supported on a space available area support basis. All requests for support will be sent through appropriate command channels to the COSCOM ACofS, Support Operations, or the TAACOM ACofS, Services. Priority of support will be set by the Corps ACofS, G3.

Force Provider Stability and Support Operations. Force Provider support to civil authorities in SASO (for example, disaster relief or humanitarian assistance) will be done IAW procedures given in FM 100-19.

Force Provider Equipment Support Contingency. Conceptually, two Force Provider equipment sets will be placed on pre-positioned ships and four in operational projects in CONUS Army depots. Those placed on ships will be responsive to missions involving OCONUS contingencies; reception and staging operations, or convoy movements. They will have a positive effect on early TPFDL flow. Those maintained in the Army depots will be used for training and testing and will be respond to other military missions, as well as supporting U.S. civil authorities' emergencies and disaster request needs.

STABILITY AND SUPPORT OPERATIONS

According to FM 100-5, the U.S. Army will evolve itself with conducting "military activities during peacetime and conflict that do not necessarily involve armed clashes between two organized forces." The Army's prime mission focus is on fighting war; however, its role in SASO is critical. During peacetime and war, the FSC personnel may be participating in disaster relief and nation assistance missions. This was true for the Quartermaster 16th FSC (DS) at Fort Lee, VA. This organization assisted the civilian community and U.S. Air Force personnel in operation Hurricane Andrew Relief at Homestead U.S. Air Force Base, FL in the summer of 1992. In August 1993, the 16th FSC, DS was tasked in Provide Disaster Relief to its close community neighbors of Petersburg and Colonial Heights, VA. A tornado hit these areas causing

severe damage to homes and businesses. Homeowners and business personnel received varied field service assistance. Humanitarian aid and disaster relief was again supported by Army field service units called to duty in the Mississippi Flood Relief of 1993.] SASO is further defined below.

SASO Principals. Army forces as FM 100-5 states, "...must be full dimensional operations. This means employing all means available to accomplish any given mission--decisively and at least cost--across the full range of possible operations in war and in operations other than war." More information on these principles can be found in "Operations Other Than War: Peacekeeping and Peace Enforcement," Center for Army Lessons Learned Newsletter.

SASO Support Enhancements. Using force projection and conducting split-based (logistics) operations for SASO, conflict, or war missions, FS support operations will continue to enhance joint and combined field service capabilities. FSC (i.e. elements, sections/teams) as part of modular units and civilian support components, as needed, will make up the proper balance of forces to support and sustain a total force concept. They will be a part of a joint, combined, United Nations, or contingency organization.

Section III

COMMUNICATIONS

COMMUNICATION SERVICES

A good working communications system is needed to set up effective unit CSSCS measures. FSC staff must be able to communicate with its higher headquarters, adjacent units, supported units, and its own internal sections. Communication resources and details for setting up telecommunications should be explained clearly in the company's TSOP. This information identifies the requirements of setting up and operating services. It denotes all automated and satellite or electromagnetic communication systems, and telephone system services. It also includes priorities for laying wire and responsibilities for setting up the system. See Appendix A for format and informational data for setting up an SOP/TSOP. Your communication system invokes the following aspects --

Communication Support. The FSC will get its communication support from the S&S Battalion with additional support from the area's assigned signal team. Refer back to Figures 1-2 and 1-3 on proposed wire and radio nets. Make sure the allocation of radio equipment is documented in the company's TSOP. (When the company uses the SINCGARS communication assets, ensure all company personnel know how to operate this satellite communication system.) After setting up the company's operating site(s), your communication personnel should enter the net within a reasonable time, OPORD or as prescribed by higher headquarters IAW CEOI in company's TSOP. Use FMs 24-1, 24-19, and 24-22 for additional guidance.

Communication Means. Your company's means of communication depends on equipment on hand, internet capability with other units, and METT-TC. FM 24-1 describes the main features and weak points for each of the following systems.

- Area common user system.

- Tactical satellite communications.
- Net radio interface.
- Audiovisual, facsimile, data, and tactical automated systems.

NOTE: Your public affairs responsibilities, concerning soldier-media interaction, are addressed in Appendix B of this manual.

METHODS OF COMMUNICATION

There are many methods of communication. Use the methods that offer maximum continuity, security, versatility, and simplicity. Do not depend on only one method. Use them to complement each other. Signal equipment, particularly when connected to cables and antennas, can be damaged by electromagnetic pulses. Therefore, alternative means of communication should always be available in case of nuclear warfare, directed energy attack, lighting strike, or equipment failure. FM 24-1 has more details on the various methods of communication. Basic communications aspects are discussed next. However, every consideration to acquire and use advanced electronic and satellite communications should be employed by the unit.

Wire. Wire system uses field wire and cable, telephones, and a switchboard to provide person-to-person conversations. Wire is more secure than radio. If you use links in your system, the enemy can intercept your conversations. Make sure your soldiers know this and practice COMSEC. See TC 24-20 for information on field wire activities and the general characteristics of equipment used with field wire systems.

Radio. Radio will be your main method of communications with your sections that are mobile or do not have access to the telephone system. However, radio is the least secure communications method. Radios can be severely damaged by the electromagnetic pulse resulting from a nuclear detonation. If your company is in or expects to be in a nuclear environment, protect your radios. Put both security and protective measures in your TSOP. When setting up operating sites, your soldiers should enter the net using procedures in FM 24-18. See FM 24-19 for daily operational procedures.

Messenger. Use your soldiers for messengers as much as possible. They provide the most secure method of communications.

Visual and Sound Signals. You can use visual and sound signals to send messages over short distances. These signals are especially useful as alarms or warnings, especially of enemy attack, or as a means of sending prearranged messages. Messages transmitted by visual or sound signal are easily misunderstood. Take care when selecting the method and the message to be conveyed. For publications on visual and sound signals, see Table 1-1 (page 1-14).

Table 1-1. Visual and sound signal publications

Publication	Coverage

FM 3-4	Sound alarms
FM 5-36	Road signs
FM 21-60	Flags, lights, panels, arm and hand signals
FM 21-305	Traffic control signals
FM 23-30	Pyrotechnics
FM 55-312	Convoy warning devices, flags, and hand signals

COMMUNICATIONS SECURITY

COMSEC consists of measures taken to keep unauthorized persons from getting information from the communications system. As outlined in FM 24-1, your soldiers should practice the following security measures in these areas: physical, transmission, cryto, and emission. Transmission and physical security measures are discussed for further clarification.

Transmission Security. The SOI governs all transmissions. The SOI is a type of classified combat order issued by higher headquarters for technical control and coordination of communications. See FM 25-35 for more information on the SOI. As a rule, you receive only an extract of the SOI, the part you need to manage your nets. Also, the SOI may give you a list of essential elements of friendly information which must not be transmitted. Your operators should have a copy of this list. They should monitor transmissions to see if information on the list is being passed. They should report any violations to their supervisor. Other ways you can make transmissions more secure include --

- Choose the most secure means of communication according to the urgency of the situation.
- Transmit only when necessary.
- Use low transmitting power when possible.
- Be wary if a radio station's signal strength suddenly changes.
- Use directional antennas and terrain masking when possible.
- Plan your message. Keep the message short as possible.
- Maintain total radio silence when directed.
- Use only authorized codes and ciphers.
- Avoid identifying yourself or others.

- Demand authentication. Do not talk to anyone who will not authenticate.

Physical Security. Impress your operators with the need to protect communications equipment from abuse, damage, or capture. Make sure they guard against disclosing the locations of equipment. Make sure phone wires are inside the defense perimeter and along frequently traveled routes. Bury wire and cables when possible. This protects against magnetic pulses during nuclear attacks. Site radios in well-defended locations. Instruct your operators to move transmitters frequently. Be sure to rotate your operators so that an enemy will not associate an operator with a specific unit or operation.

COMMUNICATION ENVIRONMENTS

The environment can have a significant impact on communications. Your soldiers must know how to install, operate, and maintain communications equipment in all environments. Cold weather, desert, jungle, mountain, and NBC environments create special problems. These areas are discussed next.

Cold Weather. For operations in severe cold weather, special arctic training is needed. See FMs 9-207, 24-1, 31-70, and 31-71 for details on operations in cold weather.

Desert. Dust and extreme heat are two major problems in desert operations. FM 24-1 lists their effects on communications. See FM 90-3 for details on desert operations.

Jungle. Humidity and heat create the biggest problems for combat communicators in the jungle. Good operator maintenance is the key to keeping equipment in working condition. FMs 24-1 and 90-5 have details on a jungle environment.

Mountain. In mountain areas, you may find it difficult to move, to find a communication site, and to ground equipment in rocky soil. You may also have problems with operating generators and carburetors at high altitudes. See FMs 24-1 and 90-6 for more details on mountain operations.

Biological and Chemical. Combat communicators will find it difficult to retain continuity of communications in a biological or chemical environment. Manual dexterity is degraded when they wear MOPP gear. Voice distortion from the protective mask will make radio and telephone conversations difficult. Personnel decontamination is time-consuming and will take CE operators away from their duty positions. To overcome these problems, train your soldiers in full MOPP gear in a simulated biological or chemical environment. See FMs 3-3, 3-4, 3-100, and 24-1 for more details on operations in a biological or chemical environment.

Nuclear. Nuclear detonations from great distances degrade signals as a result of changes in the medium characteristics (a transient effect of electromagnetic pulse). They damage systems by radiation or intense fields generated by gamma pulse.

ELECTRONIC ATTACKS

EA may hinder, confuse, or prevent radio reception. Your soldiers should report all EA according to SOI supplemental instructions. Before reporting EA, the operator should disconnect the receiving antenna to determine whether or not the signal is from an outside source. The operator should follow the procedures in FM 24-33 to determine the nature of the EA and monitoring/countermeasures used against them. These include --

Interference. Electromagnetic signals caused by sources other than the enemy may interfere with your radio reception. These sources include friendly radio signals, faulty electrical components, weather conditions, and nearby generators.

Intrusion. The insertion of electromagnetic energy into friendly signal paths so that operators are deceived or confused by it is called intrusion. The enemy may try to enter the communications system by imitating a friendly unit or station. Train your operators to counter intrusion by using correct operation codes, brevity lists, and operating signals. Make certain your operators require authentication and that they observe transmission security.

Jamming. The deliberate effort to prevent the passage of or to degrade the reception of information is jamming. It can disrupt a single frequency or an entire frequency spectrum. All radio frequencies can be jammed. An operator hearing unusual noise on the radio must try to determine its source. If he cannot trace the noise to friendly source, the radio is probably being jammed. The operator should try to identify the kind of noise and report it. Do not let the enemy know that his jamming efforts are successful.

Reports. An operator suspecting EA should report it at once. Reports are made according to the SOI supplemental instructions, using the format shown in FM 24-1, Appendix H. The operator should make the report whether or not he is successful in working through the EA. Upon receipt, the report is sent forward to higher headquarters as required by the SOI.

Training. Operators must be trained in the correct procedures to follow to restore communications or set priorities for transmissions. Train soldiers equally in all communications methods. This enables the company to continue operations during periods when one or more methods are knocked out of commission. Ensure that all users, not just prime operators, are trained. These include officers, NCOs, and other soldiers. Train them to operate communications equipment correctly and to maintain COMSEC. Train backup operators to take over when prime operators are absent. Review FM 24-1 for additional tactical and operational level signal support, regarding IMA disciplines of communications, automation, visual information, records management, and printing/publications.

Directed Energy Weapons. Weapons using directed microwave radio energy and lasers safe to the human eye may be fielded in the near future. At low power, these weapons can jam CE equipment. At higher power, they can induce excess electric currents into sensitive components to cause damage, burnout, or destruction.

Instructions. The TSOP should have the methods of installation and operation of CE equipment that best protect soldiers and equipment. CE equipment in company inventory generally will not be designed to withstand the effects of EMP. Plan to give communications priority to harden systems in an EMP environment. In training situations, emphasize compliance with EMP-related directives. Use smoke generators, pots, or grenades to absorb and reflect the directed energy of most directed energy weapons.

Section IV

PLANNING CONSIDERATIONS

SITE SELECTION

The main concern when selecting a site for operations is based on the mission and assigned area given to the company by higher headquarters and conditions of METT-TC. The site is set up with these concerns according to --

Location Support. The site should be set up as close as possible to the unit or command being supported.

Operational Support Requirements. The site operational area should support the number of personnel receiving services to include area capacity and restrictions; time constraints; METT-TC conditions; good roads network system; and, if available, natural cover and concealment.

Water Support. The site should have plenty of clean water or potable water in an arid environment. The area terrain should be gently sloping to provide proper drainage capability. (The drainage system or a ditch should be available to carry off wastewater. Before constructing such a system, the unit should check with the environmental engineer for any EPA restrictions prior to discharging any water.) Chapter 3, Section I provides detailed requirements for FSC site operations to include water and fuel needs.

THREAT ACTION

Since the FSC provides support in the division rear area and close to the FLOT in the brigade support area, they are susceptible to many threat tactics. This premise is based on modern threat capabilities and doctrine. The FSC and its elements or sections/teams will use normal defensive procedures before a threat attack and provide protection for its equipment. Some effective passive measures for equipment protection include decentralization of storage locations, the use of indoor storage facilities, and the use of protective cover for supplies stored in the open. Decentralized storage locations are especially effective against direct and indirect fire weapons. All FSC operations will cease during or upon alert of an impending NBC warning or attack. All personnel will don appropriate MOPP level gear until threat is abated. The following information covers recent changes to the threat environment and threat counter tactics, to include friendly countermeasures to be taken.

Threat Environment. The collapse of the Soviet Union and the end of the cold war has changed the threat environment. Regional conflicts are now emerging from the former Soviet Union spheres of control. Other conflict areas which now threaten U.S. and allied interests could come from such countries and regions as Kurdistan, the Balkans, the Andean Ridge, Korea, Persian Gulf, and Palestine. These conflicts could range from nuclear war to major regional conflicts to insurgencies and terrorism. Because of this new threat environment, the impact of global news networks in providing near-real-time enhances the ability of threat governments or organizations to use the media as a tool of warfare. See Appendix B for more information on what public affair procedures to take when dealing with the news media.

Threat Counter Tactics. With advance technology and the weaponry sales to third world nations and extremist organizations who can afford them, the enemy or potential enemies of U.S. forces and its allies

can employ very stiff resistance to our deployment and buildup of friendly forces' capabilities. As given in FM 10-1, tactics that the enemy will likely use to counter U.S. and allied forces include --

- *Prevent buildup of friendly forces*. Prevent the buildup of U.S. and allied forces by deploying their attack forces into a theater to block our heavy forces and by attacking our rear echelon infrastructure.

- *Control operational tempo*. Slow operational tempo of U.S. and allied forces as an example by improving their armor and anti-armor capabilities, degrading U.S. and allied forces' battlefield identification capabilities, and maximizing use of sea and/or land mines.

- *Degrade command elements*. Degrade the relative advantage of our C^3I capabilities by using electronic countermeasures and stealth or low-observation materials and technologies.

- *Employ guerrilla or terrorist and/or biological and chemical attacks*. Maximize U.S. and allied casualties through use of guerrilla or terrorist attacks and biological and chemical agents, especially in rear area support areas.

Friendly Forces Counter Support Measures. In support of the "next" battle, units and their personnel must apply their mission operations at the right location and on time. This gives the maneuver commander the opportunity to maximize his success on the battlefield. This requires units and its soldiers to train in a variety of situations and environments. Also, it requires organizational planning to meet METT-TC conditions; anticipation of support needs including timing and location setup operations; and, a thorough understanding in assisting and following through on the maneuver commander’s objectives and tactics. As the threat situation dictates, your unit may become part of the maneuver commander’s offensive “shooting” force or reserve “shooting” force or defensive counter-attack force as an extreme measure to the tactical threat situation. Friendly forces must stay current on threat doctrine, including terrorism actions, and its technological capabilities in meeting the challenge and opportune time to defeat the threat.

DEFENSIVE AND OFFENSIVE MEASURES

Because of the FSC location on the battlefield, its fighting capability will probably be a defensive measure, unless ordered by higher command to take part in an offensive (or counter attack) strike. Unlike combat support units designed and equipped to fight the enemy, the FSC is not organized or equipped to do so. However, the company or its elements or teams may have to fight an enemy force until reaction forces (such as MP or combat forces) can help. Company personnel (i.e. SLCR section(s)/team(s), S/L and CR element(s)) must be able to defend themselves and, if required, to take part in offensive tactics. Therefore, the company commander is responsible for the security and safety of the company. The company commander must train his personnel in unit collective and individual tasks. This is necessary to protect against both level I threat (attacks by agents, saboteurs, and terrorists) and level II threat (attacks by irregular or tactical units less than battalion size) activities. Training on offensive tactics will need to be employed in anticipation or preparation for offensive actions. These measures entail the following guidance --

Understanding Defensive And Offensive Principles. The principles of defense for this company are the same as those for combat units. You must adapt them because of the lack of personal, equipment, or weapons to furnish a full defense and to avail in performing your mission. If ordered to take part in an offensive mission, apply the principles stated in FM 100-5 and train to standards according to HTF manuals. Keep informed of the latest preparation measures against ground, air, and NBC attacks. See

Appendixes C and D on mission-kill operational data and fratricide prevention measures to survive on today's and tomorrow's battlefield.

Prepare Defensive Plan or Offensive Measures. Using all available means, survey your operations and make defensive plans or offensive measures to lessen the possibility and effects of an enemy attack. Plan the action your company will take during and after an attack so the company can perform its mission. Base your plan on guidance and instructions from higher headquarters on your specific mission, situation, and location. The FSC should follow these preliminary offensive support measures:

- Plan unit move.
- Perform pre-combat checks.
- Prepare unit to move.
- Prepare unit equipment and vehicles for deployment.
- Conduct tactical road march.
- Cross chemically and/or radiological contaminated area.
- Take active air defense procedures against hostile aircraft, which includes small arms fire. See FM 44-8 for small unit arms air defense measures.

Conduct C^3 I. Initiate C^3I procedures against the threat as identified in company's or team's/section's TSOP and guidance received from higher headquarters. Apply the following planning and execution operations.

Review Intelligence. Request all available intelligence about the enemy from higher headquarters on identity of probable threats. This information will likely include what enemy forces to expect and when, such as--

- Hit-and-run night or daylight missions by saboteurs.
- Small guerrilla bands or terrorist groups.
- On-target air attacks resulting from air reconnaissance.

Revise the Defense/Offense Measures. Include this data in appropriate annex(s) to the unit TSOP. Adapt the TSOP in keeping with the intelligence about the situation and the type of enemy attack or offensive strike tasking you may be expected to receive. Decide and detail counteractions as updated data to the TSOP for each type of threat to be encountered in a defensive or offensive mission. Identify, in detail, any open or restricted fire zones. Update data, as necessary, on the composition of any reaction forces. See Table 1-2 (page 1-20) for a listing of subject areas and publications with which to be familiar. Execute these actions to prepare the defense or offensive measures of the TSOP.

Perform Reconnaissance. In reconnaissance of the area, direct reconnaissance personnel to report on --

- Unusual terrain conditions.
- The condition of roads.
- Any errors in the maps being used or provided by higher headquarters.
- Any presence of threat forces including equipment and weapons.

Conduct Brief-Back. Set up a briefing so that reconnaissance personnel may brief all key personnel on their findings, including terrain and natural obstacles encountered and those that can be used for cover or camouflage. Discuss objective routes for offensive actions or likely avenues of approach by enemy attack. For defensive precautions, determine placement of OPs, automatic chemical agent alarms, and crew-served weapons for interlocking fire zones.

Table 1-2. Defense publications

For Information About:	**Use:**
Camouflage	FM 20-3
Survivability	FM 5-103
Fighting Positions	FM 7-7
Mines	FMs 20-32 and 23-23
Unit Weapons	FMs 23-14, 23-31, and 23-67
Air Attack	FM 44-80
Combat Training	FMs 7-10 and 21-75
Grenades and Pyrotechnic Signals	FM 23-30
Built-Up Areas	FM 90-10

Draw Up Defense Layout Plan. Show the placement of OPs, LPs, machine guns, mines, automatic chemical agent alarms, and all barriers on map overlays. Give a copy of the layout plan to higher headquarters and to the quartering party personnel. Define sectors of defense, and assign responsibilities for each sector. Estimate time, labor, and equipment required to construct camouflage and barriers.

Request camouflage, barrier materials, and ammunition supplies through channels. Set priorities for constructing obstacles, and assign responsibility for each barrier.

Coordinate With Adjacent Units. Higher headquarters keeps the company informed of the tactical situation, enemy capabilities, and OPORD, directing the degree of dispersion to be made for the company areas of operation. Using this information, the company coordinates its defense plan with the plans of all nearby units to form a mutual defense plan of operations. If the company is attacked, immediately inform higher headquarters and adjacent units. This report should include the time and strength of the attack so help can be provided if needed. See FM 90-14 for fire support plan and rear battle actions to be taken. See Appendix D for more information on fratricide prevention measures; it identifies actions to be taken when friendly fire incidents occur. To stay abreast with your higher headquarters and adjacent units, these communication steps must be followed.

Establish Communications. Tie into the area communications net. Ensure that a primary and alternate means of communication exists between operating sections, between operating teams and their platoon headquarters and company headquarters, and between company headquarters and higher headquarters. Use your communications net to coordinate with adjacent units to ensure that common boundaries are covered by interlocking fire.

Effect Communications Security. Implement COMSEC measures to keep unauthorized persons from getting information from the communication system. Effective use of these measures denies the enemy information on company's operations. COMSEC is everybody's responsibility. Make sure all company personnel understand and observe the security measures described in FM 19-30. Two types of COMSEC operations that they should know about are physical security and transmission security. Each is described next.

- *Maintain physical security*. Physical security includes measures to protect classified material from unauthorized persons. An important element of physical security is guarding communication equipment from abuse and damage. Table 1-3 suggests ways to physically secure communication assets.

Table 1-3. Physical security measures

• Guard against disclosures of the location of your equipment and against its damage or capture.
• Put phone wires inside your defense perimeter and along frequently traveled routes.
• Make sure your radio position can be defended.
• When moving to another site, inspect the old site before leaving. Destroy copies of messages, carbons, maps, or other documents that could aid the enemy.
• Move transmitters frequently. Rotate your operators. They have distinct voices and techniques, which the enemy can quickly connect a frequent operator with an operation.

- *Maintain transmission security*. Transmission security includes measures taken to protect transmission interception. Make sure company personnel understand and follow these measures. A list of transmission security measures to follow is given in Table 1-4.

Train Your Personnel. Make sure that company personnel know about the defense plan. Assign specific duties to them as part of the plan. Make sure all personnel know their duties. Train them so they know how to do their duties. Ensure all know the proper procedures for dispersion, concealment, and camouflage. Make sure personnel are prepared to defend themselves against air, ground, and NBC attack. Make sure personnel know how to perform offensive support measures, if ordered by higher headquarters. Table 1-5 lists suggested defensive training activities; some are applicable to offensive measures. Refer to FM 100-5 and HTF manuals for offensive activities.

Table 1-4. Transmission security measures

• Use the most secure measures.
• Avoid identifying yourself or others.
• Use low transmitting power when possible.
• Transmit only when necessary and keep messages short.
• Use signals and codes
• Plan your messages; write it out, cross out unneeded words, and then transmit it.
• Cut out unnecessary chatter. Maintain radio silence as much as possible.
• Demand authentication. Do not talk to anyone who does not authenticate.
• Be wary if a station's signal strength suddenly changes.

Table 1-5. Defense training activities

• Rehearse security and define plans; practice observation and listening post operations. Use ARs 380-40 and 105-3 and FM 21-75.
• Cross-train all personnel to operate and maintain crew-served weapons and communication equipment.
• Design field exercises requiring troops to use terrain and camouflage nets to conceal equipment and constructing barriers.
• Practice patrolling procedures; use FM 21-75. Practice working quietly: enforce noise discipline, practice using visual signals, practice working with little or no light, enforce light discipline, and practice using flashlights equipped with appropriately colored shields.

Camouflage Area And Personnel. Your soldiers are responsible for their camouflage. As they set up operations, direct them to camouflage the areas and equipment. Ensure your soldiers take full advantage of natural terrain to conceal operations. Make sure they realize that the survival of the company is in danger if any soldier can be seen by the enemy because of improper camouflage. Besides using camouflage, personnel can conceal operations by hiding or disguising them. To hide operations, set up in buildings or large warehouses, if available, and conduct night operations under blackout conditions. To disguise operations, use decoy operational areas and equipment. Ensure phone wire is laid along the side of roadways or paths and not stretched across the country. FM 20-3 gives information on camouflage, cover, and concealment.

Take Defensive NBC Measures. If an NBC attack occurs, your soldiers may have to operate in a contaminated environment until decontaminated or ordered or evacuated out of the area. To reduce hazards, make sure soldiers know what to do before, during, and after an NBC attack. Review to FM 3-3 for information on NBC warning and reporting system and FM 3-4 for guidance on protecting soldiers and unit from the effects of an NBC attack. NBC concerns and actions to be taken are --

- MOPP concerns. NBC environment will greatly affect the company's support mission. Wearing of MOPP 3 or 4 gear stops all field service support operations. Performing any taskings in one's MOPP suit leads to concern. The buildup of temperature generated inside the protective clothing can cause harm to the soldier. A stop work/rest cycle(s) is implemented to prevent personnel from overheating in their MOPP suits. See FM 3-7 for tables for determining work/rest rates.

- Contamination precautions. Effects of various chemical agents and decontamination chemicals on your company's equipment and components need to be determined whether the company can meet its mission support. Take every precaution to protect company equipment and components from exposure. Personnel must take appropriate NBC actions to counter exposure effects and handling of contaminated materials. Refer to FMs 21-11 and 8-285 for first aid measures for NBC injuries.

Enforce Rear Area Protection and Operations. RAP makes best use of defensive strength of the unit. It helps to prevent interruptions of the unit mission. The three defense principles of RAO are –

- Unity of effort and economy of forces.

- Responsiveness.

Unit of effort ensures that RAO are part of the total battle plan. *Economy of forces* involves CS and CSS units defending themselves until support forces can arrive. *Responsiveness* means quick action to destroy the enemy and reduce damage. Consequently, RAO include activities that allow freedom of maneuver, continuity of support, and uninterrupted C^2. These similar actions could be required in SASO for disaster relief and nation assistance missions. Joint Publications 3-10 and 3-10.1 and FMs 90-12 and 90-23 provide additional coverage of rear operations. Whether part of the COMMZ/JRA or CZ, RAO has four main functions--sustainment, movement, terrain management, and security. Special actions for RAO include --

Special Taskings. Within the company, designate some of your soldiers to be or serve as part of a reaction force. Also, appoint personnel on a rotating basis to serve on a reconnaissance or security patrol as needed. Ensure your personnel who serve on these missions are well informed on their duties, actions to take, and their area of operational responsibility. Specify in the TSOP how to carry out these mission

assignments, to include chain-of-command list, training requirements, organizational makeup, and implementation instructions or contingency plans.

RAO Security. Appropriate defensive security measures the company is to conduct against enemy ground attack are listed in Table 1-6 (pages 1-25 and 1-26). Security for RAO includes steps taken to reduce the effects of an infiltrating guerrilla action, sabotage action, or enemy attack. These steps may be taken before, during, or after enemy action. More information on RAS can be found in FM 10-27-3. FM 90-14 gives the overall rear battle doctrine. Company elements or sections/teams should respond to an air attack by making maximum use of camouflage and cover, since no special weapons to defend against air attack are authorized to the company. Small arms can be an effective measure against aircraft, if fired in volume. State in TSOP whether company personnel can use small arms fire at aircraft. Refer to the higher headquarters TSOP for policy directives. If this is allowed, make sure troops are trained in recognizing aircraft by using FM 44-80. Make sure your soldiers do not fire on enemy aircraft unless the aircraft is attacking the company. Even then, they may not fire on them if it will endanger friendly troops or aircraft.

Implement Risk Assessment. A risk management program must be made into your planning cycle. This ensures overall operation and mission success, including force protection security measures as combating terrorism (counter-terrorism and antiterrorism), physical security, law enforcement, personal security, and OPSEC to include C^2P. Risk assessments identify hazards and examine the resulting risks associated with the mission and/or task/objective. Risk assessment is dynamic as circumstances change and as you gain added (tactical) experience. Risk assessments confirm and reconfirm critical information that effects decisions. Consider these topics when setting up a risk management program to conduct smooth and safe mission (and training) operations. Make note of the following --

Risk and Accidents. Risk is defined as an expected and/or estimated loss, danger or peril, due to or resulting from hazard. Risk is expected in terms of hazard severity and probability; the consequences (loss or injury) of an accident. In general and historically, accidents have taken a heavy toll of US Army resources. In future operations, the impact of equipment and personnel losses and accident costs will be much greater. These losses are a measurement or loss of combat effectiveness and fighting potential of a force. Human error causes 80 percent of all Army accidents (ground and air in military and civilian operations). Other accidents are caused by material/system failure or inadequate precautions for environmental factors.

Risk Management. Risk management approach reduces losses in both combat and training consistent with objectives of mission, operation, training, collective/individual tasks employed, and system(s) used by building safety into these activities. Consequently, risk management is defined as the process of making "high" risk operations safer by eliminating or reducing risks while retaining overall mission benefit. Formal risk management process encompasses --

- *Identifying the risks* in unit mission, collective and individual tasks, and routine unit activities that point to accidental potential.

- *Assessing the risk* associated with each hazard. Develop, review, and assess techniques, practices, procedures, or plans that reduce accidents but still allow the mission to be done.

Table 1-6. Ground attack defense measures

To defend against:	Use these defense measures:
Hit and run attacks	• Continually review intelligence; brief staff and supervisory personnel on possible attacks. Go over defense plans. • Plan illumination of the area to eliminate the element of surprise. Refer to FM 21-60 for details on using illuminating grenades, flares, and expedients. • Detail night relief procedures; vary passwords. • Set up night patrols. Vary schedules and patrol routes. • Set up roving guards, particularly in the maintenance areas and around the supply tent where weapons and ammunition are stored. • Set up checkpoints. • Vary locations of OPs, LPs, and weapons. • Stress light and noise discipline. • Stress the importance of reporting possible intelligence information and reporting it accurately. Detail reporting procedures in TSOP.
Ambushes of patrols and the unit during moves to new sites	• Prior to the move, brief personnel on the tactical situation. • Review defense tactics and signals with troops • Require all personnel to be armed and able to return maximum volume of fire from positions in vehicles. • Strengthen vehicles with sandbags. • Have vehicles in the kill zone attempt to drive through the area while passengers return fire. • After moving to a point that can be defended, personnel should set up a perimeter defense. • Depending on the situation and terrain, have vehicles that have not entered the kill zone to disperse in staggered form (odd-numbered vehicles to the left, even-numbered vehicles to the right) and seek cover. Personnel should then dismount and take up firing positions.

Table 1-6. Ground attack defense measures (continued)

To defend against:	Use these defense measures:
*Attacks by guerrilla bands	• Have personnel check status of LPs and OPs. • Evacuate wounded and dead as soon as possible. • Relay cut wire. • Reposition weapons, LPs, OPs, and fighting positions that have been discovered. • Rearrange camouflage. • Change the meaning of fire signals and make sure all soldiers are aware of these changes.
*Ambushes	• Warn others of the ambush by releasing a smoke grenade or by sounding a designated warning signal. • Immediately inform higher headquarters of the situation by radio. • Inform supporting or surrounding units on your situation.
*When ambushed or attacked by guerrilla bands, unit elements should vigorously return direct fire, and execute fire and maneuver battle drill against the enemy to prevent large number of friendly force casualties. FM 7-7J lists the battle drills that work well against these types of enemy's scenario attacks.	

- *Making decisions and developing control measures* by selecting and implementing the techniques, procedures, or plan most likely to eliminate unnecessary accident risks while completing the unit mission, collective and individual tasks, or operation in question.

- *Making safety and the use of risk control procedures standard practice* by following these guidelines:

  •• Stress the ties between leadership responsibilities/awareness and safety. Each member of the chain of command must keep in mind the overall purpose of unit safety is to keep soldiers free from injury.

  •• Embed risk control measures in unit SOP/TSOP, training, and job aids.

  •• Conduct all training to standard. Safe performance is a result of training to standard. Failure to train to the standard or to enforce standards is the cause of many human-error-related accidents.

•• Supervise your subordinates. All leaders and individual soldiers must advise on safety matters which may affect soldiers and equipment in completing the task/objective or mission. Use the "tough caring" approach to safety enforcement. Do this by including safety and risk control techniques into AARs. Then implement any safety lessons learned into SOP/TSOP, training, and future operations.

Conduct Force Protection Measures. As commander, you must oversee the safeguards of your unit by taking the necessary precautions to reduce the effects of enemy operational-level actions (movement, radio security, electronic combat). You must ensure that your operational areas are well fortified and removed from significant operational hazards and protected from the use of electromagnetic spectrum. The following actions are required to safeguard and protect your unit from the threat.

Employ Force Operational Activities. You must try to hide your unit's operational activities by employing SIGSEC and concealment techniques and avoid operational patterns. Also, you must have your troops take appropriate actions to protect emitters and information transmitted through friendly C^2 communications-electronic systems from enemy exploitation. This also includes hiding your unit's operational activities and facilities from enemy observation and surveillance sensors. Again, ensure your unit varies its activities and ways of conducting operations to avoid predictable patterns that are vulnerable to enemy interception.

Provide Security of Force. Your unit can perform its mission activities if you can identify and reduce your unit's vulnerability to hostile acts, influence, or surprise. These measures protect your unit from surprise, observation, detection, interference, espionage, and sabotage (terrorism). It also involves protecting and securing your flanks of operating unit elements, setting up critical C^2 installation, setting up and securing unit facilities, and using/maintaining and securing equipment systems. For more information on force protection doctrine, see FMs 100-6 and 100-7.

Section V

ENVIRONMENTAL AWARENESS

ENVIRONMENTAL MANAGEMENT

You, the commander, your unit leaders, and soldiers are expected to be the Army's basic environmental managers. The Army's environmental vision is to be a national leader in environmental management endeavors and natural resource stewardship. The Army is has the huge task of reducing the environmental impact on its installations and units throughout the United States and the world.

The Army is renewing its emphasis on taking care of the environment. It is critical for leaders and soldiers to follow safe, legal environmental practices. By doing so, they protect their health and the health of those around them. Their actions can prevent long term environmental damage that can lead to fines and other legal damage. This mission requirement has the following aspects:

Environmental Perception. The environment issue and its concerns will be an integral part of all Army missions. This endeavor is to key on preserving, saving, and caring for man's natural and cultural assets.

Implementation of environmental stewardship goals and instilling the Army's leadership in environmental stewardship perpetuates the Army's endeavor to be a leader in environmental and natural resource protection.

Environmental Stewardship Goals. The Army no longer just complies with EPA laws. They want to be a leader in environmental protection. To do this, the Army has set goals for its leaders. These goals include --

- *Making sure operations comply with standards*. Do not receive a notice of violation or a fine for not following local, state, and federal environmental regulations.

- *Cleaning up installations*. Begin restoring all contaminated sites by year 2000.

- *Preventing future pollution*. Reduce all hazardous waste and toxic releases.

- *Integrating NEPA procedures into all operations*.

- *Protecting natural and cultural resources*.

Role of Environmental Stewardship in Leadership. A leader who cares for the environment also cares for his troops. He does this by reducing or eliminating undue health risks. He saves resources (soldiers or money) vital to his mission. He keeps training areas in excellent conditions for training far into the future. He preserves cultural artifacts for study by future generations. He also teaches the basic moral duty of soldiers to protect and preserve the United States of America and its allies.

Environmental Planning. Unit leaders must make adjustments to planned actions and reduce adverse effects on the environment without impairing the Army's mission. Unit leaders should assess and manage identified, planned activities for potential environmental risks and hazards. They should follow these guidelines for environmental risk management and stewardship endeavors:

- *Identify the hazards to the environment during mission analysis*. Point out those conditions that have the potential of polluting the air, soil, water, and/or degrading natural or cultural resources.

- *Evaluate the probability of environmental damage or violations.* Work with an environmental risk-assessment or management plan.

- *Make decisions on an environmental suitability study*. Develop measures or procedures to reduce high risk concerns.

- *Conduct environmental briefing.* Brief through the chain of command and appropriate decision maker on proposed plans, implementations, and side risks.

- *Implement environmental measures.* Integrating them into plans, orders, SOP/TSOP, training performance standards, and rehearsals. Train to the standard.

- *Supervise and enforce environmental standards*. Implement controls to ensure environmental damage is reduced.

- *Repair environmental damage*. Fix, overhaul, or rebuild the environmental landscape to the greatest extent possible, once operations are completed.

Environmental Responsibilities of Personnel. Soldiers, NCOs, officers, and commanders at all levels must protect the environment. Outlined below are each respective duties concerning responsibility to the environment.

Soldiers. Their duties include --

- Follow installations environmental policies, unit SOP, ARs, and environmental laws and regulations.
- Make sound decisions in everyday activities.
- Advise the chain of command on techniques to ensure
- Identify the environmental risks in individual and team tasks.
- Support the Army recycling program.
- Report HM and HW spills immediately.

NCOs. Their duties include --

- Always consider the environment in day-to-day decisions.
- Make sure soldiers know the Army's environmental ethic.
- Train soldiers to be good environmental stewards.
- Be committed to environmental protection.
- Identify environmental risk associated with tasks.
- Plan and conduct environmental sustainable actions and training.
- Protect the environment during training and other activities.
- Analyze the influence of the environment on your mission.
- Integrate environmental considerations into unit activities.
- Train peers and soldiers to identify the environmental effects of plans, actions, and missions.
- Counsel soldiers on the results of not complying with environmental laws.
- Incorporate environmental considerations in AARs.
- Support the Army recycling program.
- Report HM and HW spills immediately.

Officers. Their duties include --

- Build an environmental ethic in soldiers.
- Train and counsel subordinate leaders on stewardship.
- Lead by example.
- Enforce compliance with laws and regulations.
- Always consider the environment in making day-to-day decisions.
- Make sure subordinates know the Army's environmental ethic.
- Train subordinates to be good environmental stewards.
- Commit subordinate leaders to protect the environment.
- Analyze the influence of the environment on the mission.
- Integrate environmental considerations into unit activities, to include identifying the environmental risks associated with unit tasks.

Commander. An environmental ethic should be instilled by the commander to his soldiers. The spirit of environmental compliance is set by the commander. He is totally responsible for complying with all applicable environmental laws in the unit. The commander trains his unit subordinates on stewardship and counsels them on doing what is right. The commander must lead by example and enforce compliance with laws. Commanders should --

- Consider the environment in making daily decisions; know about NEPA, HM, HW, HAZCOM efforts, and spill contingencies.
- Commit subordinates to environmental protection.
- Make sure officers and NCOs know the environmental ethic and train them to be good environmental stewards.
- Counsel officers and NCOs on the importance of protecting the environment and the results of violating laws.
- Have officers and NCOs comply with requirements when reporting hazardous substance spills.
- Incorporate environmental concerns throughout training.
- Identify and assess the environmental consequences of proposed programs and activities.

- Plan and conduct training that complies with environmental laws, including marking areas as "off-limits" during training exercises.

- Discuss environmental concerns during briefings, meetings, and AARs.

- Establish and sustain unit environmental awareness training.

- Appoint an environmental compliance officer and a HW coordinator (the same person can serve both positions). These appointments ensure environmental compliance occurs at the unit level.

- Have the unit SOP to cover environmental considerations, conservation, natural resources, and spill procedures.

- Support the Army pollution prevention/recycling program.

- Report HM waste spills immediately.

- Conduct environmental self-assessment or internal environmental compliance assessments.

- Meet with key installation environmental POCs.

Appointed Personnel. These personnel are appointed by the commander and should receive formal training. Their responsibilities include --

- Serve as an advisor on environmental regulatory compliance during training, operations, and logistics functions.

- Serve as the commander's eyes and ears for environmental matters.

- Be the liaison between the unit and higher headquarters who are responsible for managing the environmental compliance programs and who can provide information on training requirements' certifications that unit personnel need.

The Unit-Level Environmental Training Program. An effective training program allows personnel to carry out their responsibilities. The commander ensures all personnel are trained on environmental issues. He appoints an environmental compliance officer/HW coordinator. This person works with other environmental personnel. He ensures environmental laws are followed. The commander meets with the battalion S3 and S4 officers and other environmental personnel. He finds what their requirements concerning environmental training and qualifications of unit personnel, ECAS inspections that may affect the unit and common environmental problem areas and how to avoid them. The commander also makes sure the unit SOP details environmental issues and procedures to be followed. The training program should cover --

- HM management.

- HW management.

- HAZCOM.
- Pollution prevention and HAZMIN.
- Recycling program.
- Spill prevention/response plan.

SAFETY ISSUES

Safety and environmental issues are always prime concerns when new equipment and systems are being developed. Some of these concerns that apply to FSC operations are discussed next.

Equipment and Personnel Safety. S/L equipment in the field is constantly being checked for safety and health hazards. Some concerns are their liquid fuels, hot surface temperatures, hot water, carbon monoxide from hot exhaust air, and electrical shock potential. An added health concern is laundry personnel handling soiled clothing and hospital items. It is possible that such items could have been used by personnel with contagious or infectious diseases, lice, or other health hazards. As a protective measure, laundry personnel should wear protective latex or rubber gloves, surgical mask, and possibly rubber waterproof aprons. CR operations must be concerned with their equipment PMCS.

Environment Safety. The main environmental concern with S/L operations is disposing of wastewater. In many areas, the practice of draining wastewater downstream in a river or into a sump is being stopped. Certain areas may require that wastewater be stored or hauled to an approved dump site or disposed of through the use of an approved sewage system, which is now mandatory on some Army posts. Before discharging any water on the ground, commanders must check with the local environmental engineers IAW AR 700-135. S/L personnel must be sure that drainage ditches are dug around equipment to control water discharge. The proper use of detergents, bleaches, and other chemical supplies is needed to control environmental impact. See Appendix E for appropriate laundry washing formulas. Fuel is supplied in 55-gallon drums or 20-liter fuel cans and connected to the equipment components by fuel lines (dryer and water heaters) or poured directly into fuel tanks on the other components (generators). Extreme caution must be exercised to prevent fuel spills.

AREA DAMAGE CONTROL

Together with environmental and safety concerns is the use of all available assets to conduct necessary ADC tasks to restore operations and provide continuous support. When ADC assets are available, the support battalion/brigade rear CP provides each base cluster with external support needed to overcome an attack and return to its primary mission. These support assets include medical evacuation and treatment elements; equipment recovery/evacuation and repair capabilities; critical supply contingencies; and EOD resources. The following ADC taskings and precautions are discussed next.

NOTE: BSA base commanders and the support battalion commander identify critical support points. They include points that are the sole local sources of supplies. They examine innovative ideas and initiatives to reduce damage. They coordinate with the host-nation assets, MPs, and engineer units through the brigade

rear CP. The commanders include ADC plans in the BDOC and BCOC defense plans. The support battalion S2/S3 helps the brigade rear CP identify requirements for emergency food; clothing, water, and fuel sources; and, available distribution assets.

Preincident ADC Taskings. IAW ADC guidelines, units in the base cluster defense complete the following tasks before any occurrences take place:

- *Identify ADC personnel*. Select specific individuals and unit elements to perform ADC operations.

- *Prepare equipment and facilities for minimal damage*. Attempt to disperse and harden unit equipment, components, and facilities to reduce damage; when practicable, use existing structures.

- *Set ADC priorities within the AO*. Point out those critical facilities needing protection and logically prioritize the responsibilities based on headquarters directives. Immediately report critical facilities not provided necessary ADC.

- *Establish ADC plans*. Prepare, coordinate, and rehearse ADC plans and SOPs.

- *Train for ADC operations*. Organize, equip, and train personnel and unit elements for ADC operations.

- *Select alternate operational sites or alert areas*. Name facilities or supply points as sole source facility.

Incident ADC Taskings. Units in the base cluster defense complete the following tasks during and after an occurrence.

- *Conduct ADC assessment*. Perform an immediate assessment of the damage and report to the BCOC. At the same time, take actions to isolate the danger areas and to prevent extension or continuation of the damage. (Fighting fires, stopping gas leaks, and reducing flooding are examples.)

- *Implement fire prevention measures*. Where possible, prevent fires by bunkering and isolating flammables and explosives. Fight existing fires with stored water or identify water sources. Extensive fire fighting is mainly a unit responsibility with support from engineer fire-fighter teams where available. However, due to the extended distances involved and the current technology that produces widespread devastation, alternative means may have to be used. Local fire-fighting capabilities such as HNS or the acquisition of commercial material to support ad hoc fire-fighting teams may be necessary.

- *Conduct casualty assistance measures*. Perform first aid (self-aid, buddy aid, and combat life saver procedures) and carry casualties to the nearest appointed medical facility. When possible, medical personnel and vehicles should evacuate patients. Timely transportation of casualties is important and may require the use of non-medical vehicles for mass casualties. Medical personnel, if possible, go with those patients being carried in non-medical vehicles to provide enroute patient care.

- *Coordinate with MPs to provide traffic control*. This ensures fire-fighting equipment gains access to the area and ambulances and evacuation vehicles clear the area. (MPs notify the brigade CP of blocked routes and divert traffic as needed.) MPs provide support that includes but is not limited to circulation

control, refugee control, straggler control; NBC detecting and reporting; and, some local security when required.

- *Coordinate with engineers to support critical facilities.* Engineers construct fortifications and barriers and clear debris and rubble in support of the base ADC mission.
- *Coordinate EOD support to area damage control operations with EODCT*. One EODCG with four subordinate EOD detachments is allocated to each separately deployed brigade.

- *Coordinate for decontamination support*. If contaminated, evacuate along specific routes (not MSR) assigned by the MCO to the appointed decontamination sites. The MPs provide route control.